EXHIBIT P

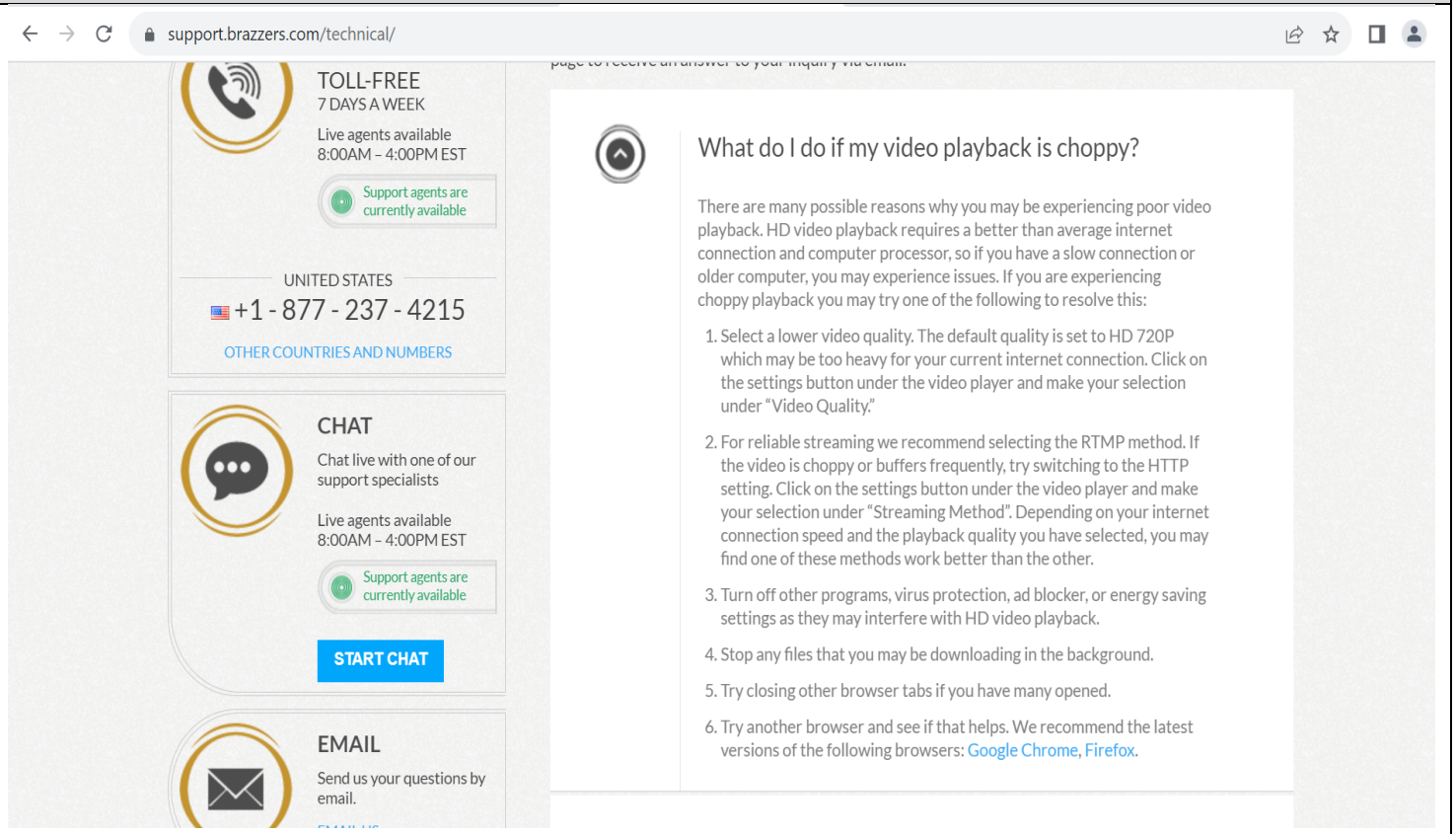
U.S. Patent No. 9,407,564 to Brazzers

The following claim chart shows exemplary aspects of the Brazzers streaming services and products ("Brazzers") that infringe claim 8 of the '564 Patent. The chart is exemplary and should not be read to limit DISH's assertions against MG Premium Ltd, AYLO Premium Ltd, Brazzers, or any other streaming services offered by MG Premium Ltd, AYLO Premium Ltd, or other Defendants as to the services or products described below. The chart should not be read to limit DISH's assertions to the patent claim charted below. Nor should the chart below be read to limit how MG Premium Ltd, AYLO Premium Ltd, and/or other Defendants infringes the claim below.

Claim Element	Example Infringement Evidence
[8.pre] A method executable by an end user station to present rate-adaptive streams received via at least one transmission control protocol (TCP) connection with a server over a network, the method comprising:	Brazzers is software and Application that permits an end user content player device to stream a video over a network from a server for playback of the video. Brazzers is a website and Application executable by devices that obtains streams of a selected video program for playback. The streams are obtained from one or more video servers connecting to Brazzers over a network using at least one transmission control protocol ("TCP"). The images in this chart are from the Brazzers website accessed through a web browser, such as Microsoft Edge or Google Chrome. In addition, the Brazzers web player is available to run on content player devices supporting all the latest versions of major web browsers. *See* https://www.support.brazzers.com/technical/ ("[Brazzers] support[s] all the latest versions of major web browsers…."). *See also id.* (shown below):

U.S. Patent No. 9,407,564 to Brazzers

Claim Element	Example Infringement Evidence



https://www.support.brazzers.com/technical/

Tests were conducted on videos offered over the Brazzers web player operating on a personal computer. As part of the testing, the Brazzers web player was connected to the internet through the Charles Proxy application, which enabled the ability to throttle the network's available bandwidth. Thus, the test simulated how Brazzers responded to lower and higher bandwidths. For the current test, a video titled "All Dolled Up – Try Me" was selected. When the user selects a video from the available videos, the Brazzers web player displays more details regarding the video and provides the user with the option to view the video.

Claim Element	Example Infringement Evidence
	Selecting the icon corresponding to a video causes that video and other materials to be streamed and displayed on the user's device. With respect to adaptively receiving the digital stream from the video server over the network, the Brazzers web player's adaptive bitrate streams are provided to the Brazzers web player from a server over a network using the HTTP Live Streaming ("HLS") adaptive bitrate streaming protocol. HLS is "a protocol for transferring unbounded streams of multimedia data." Request For Comments: 8216 – HTTP Live Streaming, August 2017 ("RFC 8216") at 1. Using HLS, "a client can receive a continuous stream of media from a server for concurrent presentation." RFC 8216 at 4. HLS "allows a receiver to adapt the bitrate of the media to the current network conditions in order to maintain uninterrupted playback at the best possible quality." RFC 8216 at 4. With HLS, "[c]lients should switch between different Variant Streams to adapt to network conditions." RFC 8216 at 5. As explained in further detail below, Brazzers performs a method executable by an end user station that presents rate-adaptive streams received from at least one server over an internet network connection.
[8.1] streaming, by a media player operating on an end user station, a video from the server via the at least one TCP connection over the network,	Brazzers accesses streams of video programs that are stored on one or more servers over a network and displayed to end user devices via the Brazzers web player. The one or more servers accessible by Brazzers store streamlets corresponding to particular segments of a video program, and each streamlet is encoded at one of numerous resolutions. The one or more servers stores variant playlists hosting a plurality of streams of the video program. Each of the stored streams comprises a plurality of streamlets at the same resolution, and the variant playlists are organized to ensure the sequential playback of the streams at a resolution supported by the available network bandwidth. The Media Playlist for each of the Variant Streams identifies a group of streamlets associated with each of the different copies, as the exemplary Media Playlist shown below illustrates. *See* RFC 8216 at 38 ("The server must create a Media Playlist file (Section 4) that contains a URI for each Media Segment that the server wishes to make available, in the order in which they are to be played."); *see also* RFC 8216 at 4 ("A multimedia presentation is specified by a Uniform Resource Identifier (URI) [RFC3986] to a Playlist."); RFC 8216 at 4 ("A Media Playlist contains a series of Media Segments that make up the overall presentation. A Media Segment is specified by a URI and optionally a byte range.").

<table>
<tr><th>Claim Element</th><th>Example Infringement Evidence</th></tr>
<tr><td></td><td>As shown by the Charles Proxy application file, partially reproduced below, the streamlet video files are hosted on a server and available at stream-private-ht.project1content.com.
<table>
<tr><th>Method</th><th>Host</th><th>Path[1]</th><th>…</th><th>Status</th></tr>
<tr><td>GET</td><td>stream-private-ht.project1content.com</td><td>/hls/b16/7ee/fd6/36a/456/6ae/85c/893/013/78d/99/video/scene,_320p,_480p,_720p,_1080p,_2160p,.mp4.urlset/seg-70-f3-v1-a1.ts?...</td><td>…</td><td>Complete</td></tr>
<tr><td>GET</td><td>stream-private-ht.project1content.com</td><td>/hls/b16/7ee/fd6/36a/456/6ae/85c/893/013/78d/99/video/scene,_320p,_480p,_720p,_1080p,_2160p,.mp4.urlset/seg-71-f3-v1-a1.ts?...</td><td>…</td><td>Complete</td></tr>
<tr><td>GET</td><td>stream-private-ht.project1content.com</td><td>/hls/b16/7ee/fd6/36a/456/6ae/85c/893/013/78d/99/video/scene,_320p,_480p,_720p,_1080p,_2160p,.mp4.urlset/seg-72-f3-v1-a1.ts?...</td><td>…</td><td>Complete</td></tr>
<tr><td>GET</td><td>stream-private-ht.project1content.com</td><td>/hls/b16/7ee/fd6/36a/456/6ae/85c/893/013/78d/</td><td>…</td><td>Complete</td></tr>
</table></td></tr>
</table>

[1] Video path abbreviated for readability throughout.

<table>
<tr><th>Claim Element</th><th>Example Infringement Evidence</th></tr>
<tr><td></td><td>
<table>
<tr><td></td><td></td><td>99/video/scene,_320p,_480p,_720p,_1080p,_2160p,.mp4.urlset/seg-73-f3-v1-a1.ts?...</td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>[8.2] wherein multiple different copies of the video encoded at different bit rates are stored as multiple sets of files on the server,</td><td>
The one or more servers accessible by the Brazzers web player store streamlets corresponding to particular segments of a video program, and each streamlet is encoded at one of numerous resolutions. The one or more servers stores virtual timelines corresponding to a plurality of streams of the video program. Each of the stored streams comprises a plurality of streamlets at the same resolution, and the virtual timelines ensure the sequential playback of the streams at a resolution supported by the available network bandwidth.

The numerous streams of the video program accessible by the Brazzers web player include a low quality stream, a medium quality stream, and a high quality stream.

For example, in the instant test of a video titled “All Dolled Up—Try Me,” the Brazzers web player made an HTTP GET request to stream-private-ht.project1content.com for a master manifest located at the following path: /hls/b16/7ee/fd6/36a/456/6ae/85c/893/013/78d/99/video/scene,_320p,_480p,_720p,_1080p,_2160p,.mp4.urlset/master.m3u8?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D (hereafter referred to as the “Master Manifest” or “master.m3u8”). The Master Manifest returned the following contents:

#EXTM3U

#EXT-X-STREAM-INF:PROGRAM-ID=1,BANDWIDTH=915420,RESOLUTION=568x320,FRAME-RATE=23.974,CODECS="avc1.64001f,mp4a.40.2"

index-f1-v1-a1.m3u8?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D

#EXT-X-STREAM-INF:PROGRAM-ID=1,BANDWIDTH=1654630,RESOLUTION=854x480,FRAME-RATE=23.974,CODECS="avc1.64001f,mp4a.40.2"
</td></tr>
</table>

Claim Element	Example Infringement Evidence
	index-f2-v1-a1.m3u8?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXT-X-STREAM-INF:PROGRAM-ID=1,BANDWIDTH=3023543,RESOLUTION=1280x720,FRAME-RATE=23.974,CODECS="avc1.64001f,mp4a.40.2" index-f3-v1-a1.m3u8?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXT-X-STREAM-INF:PROGRAM-ID=1,BANDWIDTH=4816531,RESOLUTION=1920x1080,FRAME-RATE=23.974,CODECS="avc1.640032,mp4a.40.2" index-f4-v1-a1.m3u8?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXT-X-STREAM-INF:PROGRAM-ID=1,BANDWIDTH=6660563,RESOLUTION=3840x2160,FRAME-RATE=23.974,CODECS="avc1.640033,mp4a.40.2" index-f5-v1-a1.m3u8?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D File path: **master.m3u8** The master playlist shows five versions of the video stream at the following bandwidths: • 915420 (referred to herein as "**915420 Bandwidth**") having a resolution of 568x320 • 1654630 (referred to herein as "**1654630 Bandwidth**") having a resolution of 854x480 • 3023543 (referred to herein as "**3023543 Bandwidth**") having a resolution of 1280x720 • 4816531 (referred to herein as "**4816531 Bandwidth**") having a resolution of 1920x1080 • 6660563 (referred to herein as "**6660563 Bandwidth**") having a resolution of 3840x1260

<table>
<tr><th>Claim Element</th><th>Example Infringement Evidence</th></tr>
<tr><td></td><td>For each of these versions, the master playlist provides a link to a playlist for the specified version of the selected video program at a particular bandwidth and resolution. Each version playlist is defined by the token associated with the stream file path. For example:

<table>
<tr><th>Bandwidth</th><th>Token[2]</th></tr>
<tr><td>915420 Bandwidth</td><td>index-f1-v1-a1.m3u8?...</td></tr>
<tr><td>1654630 Bandwidth</td><td>index-f2-v1-a1.m3u8?...</td></tr>
<tr><td>3023543 Bandwidth</td><td>index-f3-v1-a1.m3u8?...</td></tr>
<tr><td>4816531 Bandwidth</td><td>index-f4-v1-a1.m3u8?...</td></tr>
<tr><td>6660563 Bandwidth</td><td>index-f5-v1-a1.m3u8?...</td></tr>
</table>

Each of the bandwidth streams includes segments that encode the same portion of the video at various qualities. For example, the 915420 Bandwidth version can be considered a low-quality stream, the 1654640 Bandwidth version can be considered a medium-quality stream, and the 3023543 Bandwidth version can be considered a high-quality stream.</td></tr>
</table>

[2] Token abbreviated for readability. The abbreviated portions of each token are the same across all bandwidth versions.

Claim Element	Example Infringement Evidence
	Brazzers uses HTTPS GET requests to retrieve the segments, or streamlets, of the encoded video specified in the file above. The Media Playlist for each of the Variant Streams identifies a group of streamlets associated with each of the different copies, as the exemplary Media Playlist shown below illustrates. *See* RFC 8216 at 38 ("The server must create a Media Playlist file (Section 4) that contains a URI for each Media Segment that the server wishes to make available, in the order in which they are to be played."); *see also* RFC 8216 at 4 ("A multimedia presentation is specified by a Uniform Resource Identifier (URI) [RFC3986] to a Playlist."); RFC 8216 at 4 ("A Media Playlist contains a series of Media Segments that make up the overall presentation. A Media Segment is specified by a URI and optionally a byte range."). As shown in the test data, Brazzers selects the **3023543 Bandwidth** version of the stream and makes a request for the corresponding playlist. The Brazzers Server(s) returns the playlist file with the following contents: #EXTM3U #EXT-X-TARGETDURATION:4 #EXT-X-ALLOW-CACHE:YES #EXT-X-PLAYLIST-TYPE:VOD #EXT-X-VERSION:3 #EXT-X-MEDIA-SEQUENCE:1 #EXTINF:3.000, seg-1-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXTINF:4.000,

Claim Element	Example Infringement Evidence
	seg-2-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXTINF:4.000, seg-3-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXTINF:4.000, seg-4-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXTINF:4.000, seg-5-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D [***] #EXTINF:4.000, seg-556-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXTINF:4.000, seg-557-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D

Claim Element	Example Infringement Evidence
	#EXTINF:4.000, seg-558-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXTINF:0.616, seg-559-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXT-X-ENDLIST On information and belief, the other bandwidth versions of the test video contain the same number of streamlet files.
[8.3] wherein each of the files yields a different portion of the video on playback,	As mentioned above, Brazzers videos are encoded at a plurality of different bitrates to create a plurality of streams including at least low, medium, and high quality streams. Each of the low, medium, and high quality streams has a streamlet that encodes the same portion of the video at a different one of the plurality of different bitrates. Each of the streamlets comprising the low, medium, and high, quality streams are stored in variant playlists comprising a group of streamlets of the same quality at a respective bit rate. In the instant test, a personal computer accessing the Brazzers web player through a web browser makes a HTTPS GET request to **stream-private-ht.project1content.com** for the Master Manifest. As shown in the excerpts of the Master Manifest below, the video available is encoded at 5 different bitrates. #EXTM3U #EXT-X-STREAM-INF:PROGRAM-ID=1,BANDWIDTH=915420,RESOLUTION=568x320,FRAME-RATE=23.974,CODECS="avc1.64001f,mp4a.40.2"

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Claim Element	Example Infringement Evidence
	index-f1-v1-a1.m3u8?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXT-X-STREAM-INF:PROGRAM-ID=1,BANDWIDTH=1654630,RESOLUTION=854x480,FRAME-RATE=23.974,CODECS="avc1.64001f,mp4a.40.2" index-f2-v1-a1.m3u8?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXT-X-STREAM-INF:PROGRAM-ID=1,BANDWIDTH=3023543,RESOLUTION=1280x720,FRAME-RATE=23.974,CODECS="avc1.64001f,mp4a.40.2" index-f3-v1-a1.m3u8?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXT-X-STREAM-INF:PROGRAM-ID=1,BANDWIDTH=4816531,RESOLUTION=1920x1080,FRAME-RATE=23.974,CODECS="avc1.640032,mp4a.40.2" index-f4-v1-a1.m3u8?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXT-X-STREAM-INF:PROGRAM-ID=1,BANDWIDTH=6660563,RESOLUTION=3840x2160,FRAME-RATE=23.974,CODECS="avc1.640033,mp4a.40.2"

<table>
<tr><th>Claim Element</th><th>Example Infringement Evidence</th></tr>
<tr><td></td><td>
<table><tr><td>index-f5-v1-a1.m3u8?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D</td></tr></table>

File path: master.m3u8

The master playlist shows five versions of the video stream at the following bandwidths:

• 915420 (referred to herein as “915420 Bandwidth”) having a resolution of 568x320
• 1654630 (referred to herein as “1654630 Bandwidth”) having a resolution of 854x480
• 3023543 (referred to herein as “3023543 Bandwidth”) having a resolution of 1280x720
• 4816531 (referred to herein as “4816531 Bandwidth”) having a resolution of 1920x1080
• 6660563 (referred to herein as “6660563 Bandwidth”) having a resolution of 3840x1260

For each of these versions, the master playlist provides a link to a playlist for the specified version of the selected video program at a particular bandwidth and resolution. Each version playlist is defined by the token associated with the stream file path. For example:
<table>
<tr><th>Bandwidth</th><th>Token</th></tr>
<tr><td>915420 Bandwidth</td><td>index-f1-v1-a1.m3u8?...</td></tr>
<tr><td>1654630 Bandwidth</td><td>index-f2-v1-a1.m3u8?...</td></tr>
<tr><td>3023543 Bandwidth</td><td>index-f3-v1-a1.m3u8?...</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>Claim Element</th><th>Example Infringement Evidence</th></tr>
<tr><td></td><td>
<table>
<tr><td>4816531 Bandwidth</td><td>index-f4-v1-a1.m3u8?...</td></tr>
<tr><td>6660563 Bandwidth</td><td>index-f5-v1-a1.m3u8?...</td></tr>
</table>
Each of the bandwidth streams includes segments that encode the same portion of the video at various qualities. For example, the 915420 Bandwidth version can be considered a low-quality stream, the 1654640 Bandwidth version can be considered a medium-quality stream, and the 3023543 Bandwidth version can be considered a high-quality stream.
As shown below, each of the 915420 Bandwidth and 3023543 Bandwidth version playlists contain segments, or streamlets, that encode segments of the video program. The streamlet files within each version playlist are arranged in ascending chronological order, beginning with the first segment of the video program and progressing until the final segment of the video program.
<table>
<tr><th>Bandwidth</th><th>Streamlet (<u>segment</u>)</th></tr>
<tr><td>915420 Bandwidth</td><td>#EXTM3U
#EXT-X-TARGETDURATION:4
#EXT-X-ALLOW-CACHE:YES
#EXT-X-PLAYLIST-TYPE:VOD
#EXT-X-VERSION:3
#EXT-X-MEDIA-SEQUENCE:1
#EXTINF:3.000,</td></tr>
</table>
</td></tr>
</table>

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Claim Element	Example Infringement Evidence	
		seg-1-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXTINF:4.000, **seg-2**-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXTINF:4.000, **seg-3**-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXTINF:4.000, **seg-4**-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXTINF:4.000, **seg-5**-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D
	3023543 Bandwidth	#EXTM3U #EXT-X-TARGETDURATION:4 #EXT-X-ALLOW-CACHE:YES

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Claim Element	Example Infringement Evidence	
		#EXT-X-PLAYLIST-TYPE:VOD #EXT-X-VERSION:3 #EXT-X-MEDIA-SEQUENCE:1 #EXTINF:3.000, **seg-1**-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXTINF:4.000, **seg-2**-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXTINF:4.000, **seg-3**-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXTINF:4.000, **seg-4**-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXTINF:4.000, **seg-5**-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D

Claim Element	Example Infringement Evidence
	On information and belief, playlists for the other resolution variants also include these segments, or streamlets, also arranged in ascending chronological order and corresponding to the same portion of the video provided on-demand from the Brazzers web player's server(s). Each of the low-quality stream, medium-quality stream, and high-quality stream comprise a group of streamlets that are encoded at the same respective one of the different bitrates. As set forth above, each of the Variant Streams "describes a different version of the same content." RFC 8216 at 5. Thus, each of the Variant Streams are "encodings of the same presentation" at different bitrates. RFC 8216 at 42. Indeed, to allow "clients to switch between" Variant Streams seamlessly, HLS requires that "[e]ach Variant Stream MUST present the same content" on playback. RFC 8216 at 43. And, HLS provides that "[m]atching content in Variant Streams MUST have matching timestamps" to allow the Brazzers web player to synchronize the media. *Id.* Further, "[e]ach Media Segment in a Media Playlist has an integer Discontinuity Sequence Number. The Discontinuity Sequence Number can be used in addition to the timestamps within the media to synchronize Media Segments across different Renditions." RFC 8216 at 39. Thus, "[m]atching content in Variant Streams MUST have matching Discontinuity Sequence Numbers." RFC 8216 at 43. The video server stores the video wherein "each of the low quality stream, the medium quality stream, and the high quality stream comprising a group of streamlets." The HLS protocol indicates that "[a] Media Playlist contains a list of Media Segments, which, when played sequentially, will play the multimedia presentation." RFC 8216 at 4; *see also* RFC 8216 at 5 ("To play this Playlist, the client first downloads it and then downloads and plays each Media Segment declared within it. The client reloads the Playlist as described in this document to discover any added segments."); RFC 8216 at 4 ("A Media Playlist contains a series of Media Segments that make up the overall presentation."). Each of the Media Segments in HLS yields a different portion of the video on playback. For example, HLS provides that "[e]ach segment in a Media Playlist has a unique integer Media Sequence Number. The Media Sequence Number of the first segment in the Media Playlist is either 0 or declared in the Playlist (Section 4.3.3.2). The Media Sequence Number of every other segment is equal to the Media Sequence Number of the segment that precedes it plus one." RFC 8216 at 6. As such, "[e]ach Media Segment MUST carry the

<table>
<tr><th>Claim Element</th><th>Example Infringement Evidence</th></tr>
<tr><td></td><td>continuation of the encoded bitstream from the end of the segment with the previous Media Sequence Number, where values in a series such as timestamps and Continuity Counters MUST continue uninterrupted.” RFC 8216 at 6. Thus, each of the streamlets in a set must yield a different portion of the video on playback.

The streamlets across the different copies yield the same portions of the video on playback. As set forth above, each of the Variant Streams “describes a different version of the same content.” RFC 8216 at 5. Thus, each of the Variant Streams are “encodings of the same presentation” at different bitrates. RFC 8216 at 42. Indeed, to allow “clients to switch between” Variant Streams seamlessly, HLS requires that “[e]ach Variant Stream MUST present the same content” on playback. RFC 8216 at 43.</td></tr>
<tr><td>[8.4] wherein the files across the different copies yield the same portions of the video on playback, and</td><td>As explained above, Brazzers videos are encoded at a plurality of different bitrates to create a plurality of streams including at least low, medium, and high quality streams. Each of the low, medium, and high quality streams has a streamlet that encodes the same portion of the video at a different one of the plurality of different bitrates. Each of the streamlets comprising the low, medium, and high, quality streams are stored in variant playlists comprising a group of streamlets of the same quality at a respective bit rate.

The master playlist shows five versions of the video stream at the following bandwidths:

• 915420 (referred to herein as “915420 Bandwidth”) having a resolution of 568x320
• 1654630 (referred to herein as “1654630 Bandwidth”) having a resolution of 854x480
• 3023543 (referred to herein as “3023543 Bandwidth”) having a resolution of 1280x720
• 4816531 (referred to herein as “4816531 Bandwidth”) having a resolution of 1920x1080
• 6660563 (referred to herein as “6660563 Bandwidth”) having a resolution of 3840x1260

For each of these versions, the master playlist provides a link to a playlist for the specified version of the selected video program at a particular bandwidth and resolution. Each version playlist is defined by the token associated with the stream file path. For example:

<table><tr><th>Bandwidth</th><th>Token</th></tr></table></td></tr>
</table>

<table>
<tr><th>Claim Element</th><th>Example Infringement Evidence</th></tr>
<tr><td></td><td>
<table>
<tr><td>915420 Bandwidth</td><td>index-f1-v1-a1.m3u8?...</td></tr>
<tr><td>1654630 Bandwidth</td><td>index-f2-v1-a1.m3u8?...</td></tr>
<tr><td>3023543 Bandwidth</td><td>index-f3-v1-a1.m3u8?...</td></tr>
<tr><td>4816531 Bandwidth</td><td>index-f4-v1-a1.m3u8?...</td></tr>
<tr><td>6660563 Bandwidth</td><td>index-f5-v1-a1.m3u8?...</td></tr>
</table>

Each of the bandwidth streams includes segments that encode the same portion of the video at various qualities. For example, the 915420 Bandwidth version can be considered a low-quality stream, the 1654640 Bandwidth version can be considered a medium-quality stream, and the 3023543 Bandwidth version can be considered a high-quality stream.

As shown below, each of the 915420 Bandwidth and 3023543 Bandwidth version playlists contain segments, or streamlets, that encode segments of the video program. The streamlet files within each version playlist are arranged in ascending chronological order, beginning with the first segment of the video program and progressing until the final segment of the video program.

<table>
<tr><th>Bandwidth</th><th>Streamlet (<u>segment</u>)</th></tr>
<tr><td>915420 Bandwidth</td><td>#EXTM3U
#EXT-X-TARGETDURATION:4
#EXT-X-ALLOW-CACHE:YES</td></tr>
</table>
</td></tr>
</table>

U.S. Patent No. 9,407,564 to Brazzers

Claim Element	Example Infringement Evidence	
		#EXT-X-PLAYLIST-TYPE:VOD #EXT-X-VERSION:3 #EXT-X-MEDIA-SEQUENCE:1 #EXTINF:3.000, **seg-1**-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXTINF:4.000, **seg-2**-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXTINF:4.000, **seg-3**-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXTINF:4.000, **seg-4**-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXTINF:4.000,

Claim Element	Example Infringement Evidence	
		seg-5-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D
	3023543 Bandwidth	#EXTM3U #EXT-X-TARGETDURATION:4 #EXT-X-ALLOW-CACHE:YES #EXT-X-PLAYLIST-TYPE:VOD #EXT-X-VERSION:3 #EXT-X-MEDIA-SEQUENCE:1 #EXTINF:3.000, **seg-1**-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXTINF:4.000, **seg-2**-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXTINF:4.000, **seg-3**-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXTINF:4.000,

Claim Element	Example Infringement Evidence

	seg-4-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXTINF:4.000, **seg-5**-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D

On information and belief, playlists for the other resolution variants also include these segments, or streamlets, also arranged in ascending chronological order and corresponding to the same portion of the video provided on-demand from the Brazzers web player's server(s).

Each of the low-quality stream, medium-quality stream, and high-quality stream comprise a group of streamlets that are encoded at the same respective one of the different bitrates. As set forth above, each of the Variant Streams "describes a different version of the same content." RFC 8216 at 5. Thus, each of the Variant Streams are "encodings of the same presentation" at different bitrates. RFC 8216 at 42. Indeed, to allow "clients to switch between" Variant Streams seamlessly, HLS requires that "[e]ach Variant Stream MUST present the same content" on playback. RFC 8216 at 43. And, HLS provides that "[m]atching content in Variant Streams MUST have matching timestamps" to allow the Brazzers web player to synchronize the media. *Id*. Further, "[e]ach Media Segment in a Media Playlist has an integer Discontinuity Sequence Number. The Discontinuity Sequence Number can be used in addition to the timestamps within the media to synchronize Media Segments across different Renditions." RFC 8216 at 39. Thus, "[m]atching content in Variant Streams MUST have matching Discontinuity Sequence Numbers." RFC 8216 at 43.

The video server stores the video wherein "each of the low quality stream, the medium quality stream, and the high quality stream comprising a group of streamlets." The HLS protocol indicates that "[a] Media Playlist contains a list of Media Segments, which, when played sequentially, will play the multimedia presentation." RFC 8216 at 4; *see also* RFC 8216 at 5 ("To play this Playlist, the client first downloads it and then downloads and plays each Media Segment declared within it. The client reloads the Playlist as described in this document to

<table>
<tr><th>Claim Element</th><th>Example Infringement Evidence</th></tr>
<tr><td></td><td>
discover any added segments."); RFC 8216 at 4 ("A Media Playlist contains a series of Media Segments that make up the overall presentation.").

Each of the Media Segments in HLS yields a different portion of the video on playback. For example, HLS provides that "[e]ach segment in a Media Playlist has a unique integer Media Sequence Number. The Media Sequence Number of the first segment in the Media Playlist is either 0 or declared in the Playlist (Section 4.3.3.2). The Media Sequence Number of every other segment is equal to the Media Sequence Number of the segment that precedes it plus one." RFC 8216 at 6. As such, "[e]ach Media Segment MUST carry the continuation of the encoded bitstream from the end of the segment with the previous Media Sequence Number, where values in a series such as timestamps and Continuity Counters MUST continue uninterrupted." RFC 8216 at 6. Thus, each of the streamlets in a set must yield a different portion of the video on playback.

The streamlets across the different copies yield the same portions of the video on playback. As set forth above, each of the Variant Streams "describes a different version of the same content." RFC 8216 at 5. Thus, each of the Variant Streams are "encodings of the same presentation" at different bitrates. RFC 8216 at 42. Indeed, to allow "clients to switch between" Variant Streams seamlessly, HLS requires that "[e]ach Variant Stream MUST present the same content" on playback. RFC 8216 at 43.

For the instant test, the Brazzers web player requests and receives the streamlets corresponding to the portion of the video program to be viewed, here, All Dolled Up – Try Me Edition". Below is an excerpt of the Charles "Sequence" listing showing the same alongside the status of the requests:
<table>
<tr><th>Method</th><th>Host</th><th>Path</th><th>…</th><th>Status</th></tr>
<tr><td>GET</td><td>stream-private-ht.project1content.com</td><td>…/hls/…/seg-1-f1-v1-a1.ts?...</td><td>…</td><td>Complete</td></tr>
<tr><td>GET</td><td>stream-private-ht.project1content.com</td><td>…/hls/…/seg-2-f3-v1-a1.ts?...</td><td>…</td><td>Complete</td></tr>
<tr><td>GET</td><td>stream-private-ht.project1content.com</td><td>…/hls/…/seg-3-f3-v1-a1.ts?...</td><td>…</td><td>Complete</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>Claim Element</th><th>Example Infringement Evidence</th></tr>
<tr><td></td><td>
<table>
<tr><td>GET</td><td>stream-private-ht.project1content.com</td><td>…/hls/…/seg-4-f3-v1-a1.ts?...</td><td>…</td><td>Complete</td></tr>
</table>
</td></tr>
<tr><td>[8.5] wherein each of the files comprises a time index such that the files whose playback is the same portion of the video for each of the different copies have the same time index in relation to the beginning of the video, and wherein the streaming comprises:</td><td>As explained above, Brazzers videos are encoded at a plurality of different bitrates to create a plurality of streams including at least low, medium, and high quality streams. Each of the low, medium, and high quality streams has a streamlet that encodes the same portion of the video at a different one of the plurality of different bitrates. Each of the streamlets comprising the low, medium, and high, quality streams are stored in variant playlists comprising a group of streamlets of the same quality at a respective bit rate.

The streamlets across the different copies yield the same portions of the video on playback. As set forth above, each of the Variant Streams “describes a different version of the same content.” RFC 8216 at 5. Thus, each of the Variant Streams are “encodings of the same presentation” at different bitrates. RFC 8216 at 42. Indeed, to allow “clients to switch between” Variant Streams seamlessly, HLS requires that “[e]ach Variant Stream MUST present the same content” on playback. RFC 8216 at 43.

Each of the Media Segments in HLS yields a different portion of the video on playback. For example, HLS provides that “[e]ach segment in a Media Playlist has a unique integer Media Sequence Number. The Media Sequence Number of the first segment in the Media Playlist is either 0 or declared in the Playlist (Section 4.3.3.2). The Media Sequence Number of every other segment is equal to the Media Sequence Number of the segment that precedes it plus one.” RFC 8216 at 6. As such, “[e]ach Media Segment MUST carry the continuation of the encoded bitstream from the end of the segment with the previous Media Sequence Number, where values in a series such as timestamps and Continuity Counters MUST continue uninterrupted.” RFC 8216 at 6. Thus, each of the streamlets in a set must yield a different portion of the video on playback.

Each of the bandwidth streams includes segments that encode the same portion of the video at various qualities. For example, the **915420 Bandwidth** version can be considered a low-quality stream, the **1654640 Bandwidth** version can be considered a medium-quality stream, and the **3023543 Bandwidth** version can be considered a high-quality stream.

As shown below, each of the **915420 Bandwidth** and **3023543 Bandwidth** version playlists contain segments, or streamlets, that encode segments of the video program. The streamlet files within each version playlist are</td></tr>
</table>

<table>
<tr><th>Claim Element</th><th>Example Infringement Evidence</th></tr>
<tr><td></td><td>arranged in ascending chronological order, beginning with the first segment of the video program and progressing until the final segment of the video program.
<table>
<tr><th>Bandwidth</th><th>Streamlet (segment)</th></tr>
<tr><td>915420 Bandwidth</td><td>#EXTM3U
#EXT-X-TARGETDURATION:4
#EXT-X-ALLOW-CACHE:YES
#EXT-X-PLAYLIST-TYPE:VOD
#EXT-X-VERSION:3
#EXT-X-MEDIA-SEQUENCE:1
#EXTINF:3.000,
seg-1-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D
#EXTINF:4.000,
seg-2-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D
#EXTINF:4.000,
seg-3-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D</td></tr>
</table></td></tr>
</table>

Claim Element	Example Infringement Evidence	
		#EXTINF:4.000, **seg-4**-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXTINF:4.000, **seg-5**-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D
	3023543 Bandwidth	#EXTM3U #EXT-X-TARGETDURATION:4 #EXT-X-ALLOW-CACHE:YES #EXT-X-PLAYLIST-TYPE:VOD #EXT-X-VERSION:3 #EXT-X-MEDIA-SEQUENCE:1 #EXTINF:3.000, **seg-1**-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXTINF:4.000, **seg-2**-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D

<table>
<tr><th>Claim Element</th><th>Example Infringement Evidence</th></tr>
<tr><td></td><td>
<table>
<tr><td></td><td>#EXTINF:4.000,

<u>seg-3</u>-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D

#EXTINF:4.000,

<u>seg-4</u>-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D

#EXTINF:4.000,

<u>seg-5</u>-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D</td></tr>
</table>

On information and belief, playlists for the other resolution variants also include these segments, or streamlets, also arranged in ascending chronological order and corresponding to the same portion of the video provided on-demand from the Brazzers web player’s server(s).</td></tr>
<tr><td>[8.6] requesting by the media player a plurality of sequential files of one of the copies from the server based on the time indexes;</td><td>As explained above, Brazzers requests segments, or streamlets from the one or more Brazzers servers to display on an end user device. The video segments are presented in sequential ascending chronological order, based upon the previously requested and/or fulfilled streamlet, defined by time index relevant to the beginning of the program.

Additionally, HLS provides that “[m]atching content in Variant Streams MUST have matching timestamps” to allow Brazzers to synchronize the media. RFC 8216 at 43. And, “[e]ach Media Segment in a Media Playlist has an integer Discontinuity Sequence Number. The Discontinuity Sequence Number can be used in addition to the timestamps within the media to synchronize Media Segments across different Renditions.” RFC 8216 at 39.</td></tr>
</table>

<table>
<tr><th>Claim Element</th><th>Example Infringement Evidence</th></tr>
<tr><td></td><td>
Thus, “[m]atching content in Variant Streams MUST have matching Discontinuity Sequence Numbers.” RFC 8216 at 43.

As noted above, the variant playlist file is an HLS playlist. Each line in the file that begins with “#EXTINF” specifies the length of the segments in seconds. The line below the #EXTINF file is the location of the video file. In the present test, the Brazzers web player uses HTTPS GET requests to request and retrieve the segments of the encoded stream specified in the file above. The video files are hosted at stream-private-ht.project1content.com, and each streamlet (except the first and final streamlets) is 4.000 seconds long.

The received playlists at each resolution includes video streamlets, such as: “seg-1-f[X]-v1-a1.ts,” “seg-2-f[X]-v1-a1.ts,” “seg-3-f[X] -v1-a1.ts,” “seg-4-f[X]-v1-a1.ts,” and “seg-5-f[X]-v1-a1.ts,” where [X] corresponds to a unique identifier for each bandwidth version. Within each bandwidth playlist file, there are the 559 .ts files, each corresponding to the same segmented moments in the video.

<table>
<tr><th>Bandwidth Version</th><th>File line (#EXTINF: length) (portion of live stream)</th></tr>
<tr><td>915420 Bandwidth</td><td>#EXTM3U

#EXT-X-TARGETDURATION:4

#EXT-X-ALLOW-CACHE:YES

#EXT-X-PLAYLIST-TYPE:VOD

#EXT-X-VERSION:3

#EXT-X-MEDIA-SEQUENCE:1

#EXTINF:3.000,

seg-1-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D

#EXTINF:4.000,</td></tr>
</table>
</td></tr>
</table>

Claim Element	Example Infringement Evidence	
		seg-2-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D **#EXTINF:4.000**, seg-3-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D **#EXTINF:4.000**, seg-4-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D **#EXTINF:4.000**, seg-5-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D [***] **#EXTINF:4.000**, seg-556-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D **#EXTINF:4.000**, seg-557-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D

Claim Element	Example Infringement Evidence	
		#EXTINF:4.000, seg-558-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D **#EXTINF:0.616**, seg-559-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXT-X-ENDLIST
	3023543 Bandwidth	#EXTM3U #EXT-X-TARGETDURATION:4 #EXT-X-ALLOW-CACHE:YES #EXT-X-PLAYLIST-TYPE:VOD #EXT-X-VERSION:3 #EXT-X-MEDIA-SEQUENCE:1 **#EXTINF:3.000**, seg-1-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D **#EXTINF:4.000**, seg-2-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D

Claim Element	Example Infringement Evidence
	#EXTINF:4.000, seg-3-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D **#EXTINF:4.000**, seg-4-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D **#EXTINF:4.000**, seg-5-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D [***] **#EXTINF:4.000**, seg-556-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D **#EXTINF:4.000**, seg-557-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D **#EXTINF:4.000**,

<table>
<tr><th>Claim Element</th><th>Example Infringement Evidence</th></tr>
<tr><td></td><td>
<table>
<tr><td></td><td>seg-558-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D

#EXTINF:0.616,

seg-559-f3-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D

#EXT-X-ENDLIST</td></tr>
</table>

On information and belief, the other bandwidth file playlists also comprise 559 streamlets, each corresponding to the same portion of video as is respective counterpart in the streamlet files shown above.

The matching timestamps and Discontinuity Sequence Numbers for matching content across the Variant Streams are “in relation to the beginning of the video.” For example, HLS requires that “[e]ach Media Segment MUST carry the continuation of the encoded bitstream from the end of the segment with the previous Media Sequence Number, where values in a series such as timestamps and Continuity Counters MUST continue uninterrupted.” RFC 8216 at 6; *see also* RFC 8216 at 45 (“A client MUST NOT assume that segments with the same Media Sequence Number in different Variant Streams or Renditions have the same position in the presentation; Playlists MAY have independent Media Sequence Numbers. Instead, a client MUST use the relative position of each segment on the Playlist timeline and its Discontinuity Sequence Number to locate corresponding segments.”).

Indeed, to adapt playback between different bitrate Variant Streams, the Brazzers web player “can use the EXTINF durations and the constraints in Section 6.2.4 to determine the approximate location of corresponding media. Once media from the new Variant Stream has been loaded, the timestamps in the Media Segments can be used to synchronize the old and new timelines precisely.” RFC 8216 at 47.</td></tr>
</table>

<table>
<tr><th>Claim Element</th><th>Example Infringement Evidence</th></tr>
<tr><td>[8.7] automatically requesting by the media player from the server subsequent portions of the video by requesting for each such portion one of the files from one of the copies dependent upon successive determinations by the media player to shift the playback quality to a higher or lower quality one of different copies,</td><td>As explained above, the video segments are presented in sequential ascending chronological order, based upon the previously requested and/or fulfilled streamlet, defined by time index relevant to the beginning of the program. The requests are transmitted automatically, without the need for user request for the sequential streamlets.

Each of the Variant Streams “describes a different version of the same content.” RFC 8216 at 5. Thus, each of the Variant Streams are “encodings of the same presentation” at different bitrates. RFC 8216 at 42. Indeed, to streamlet encoding the same portion of the video in the high quality stream; allow “clients to switch between” Variant Streams seamlessly, HLS requires that “[e]ach Variant Stream MUST present the same content” on playback. RFC 8216 at 43. Further, HLS provides that “[m]atching content in Variant Streams MUST have matching timestamps” to allow Brazzers to synchronize the media. RFC 8216 at 43. And, “[e]ach Media Segment in a Media Playlist has an integer Discontinuity Sequence Number. The Discontinuity Sequence Number can be used in addition to the timestamps within the media to synchronize Media Segments across different Renditions.” RFC 8216 at 39. Thus, “[m]atching content in Variant Streams MUST have matching Discontinuity Sequence Numbers.” RFC 8216 at 43.

As noted above, the variant playlist file is an HLS playlist. Each line in the file that begins with “#EXTINF” specifies the length of the segments in seconds. The line below the #EXTINF file is the location of the video file. In the present test, the Brazzers web player uses HTTPS GET requests to request and retrieve the segments of the encoded stream specified in the file above. The first streamlet of each of the variant playlists used to stream the video titled “All Dolled Up—Try Me” are the same duration (3.000 seconds) and encode the same portion of the video. The video streamlet files are hosted at stream-private-ht.project1content.com. This is illustrated below:

<table>
<tr><th>Bandwidth Version</th><td>File line (#EXTINF: length) (<u>same portion of live stream</u>)</td></tr>
<tr><td>915420 Bandwidth</td><td>#EXTM3U
#EXT-X-TARGETDURATION:4
#EXT-X-ALLOW-CACHE:YES</td></tr>
</table>
</td></tr>
</table>

Claim Element	Example Infringement Evidence	
		#EXT-X-PLAYLIST-TYPE:VOD #EXT-X-VERSION:3 #EXT-X-MEDIA-SEQUENCE:1 **#EXTINF:3.000**, seg-1-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D **#EXTINF:4.000**, seg-2-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D **#EXTINF:4.000**, seg-3-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D **#EXTINF:4.000**, seg-4-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D **#EXTINF:4.000**, seg-5-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D

Claim Element	Example Infringement Evidence	
		[***] **#EXTINF:4.000**, seg-556-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D **#EXTINF:4.000**, seg-557-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D **#EXTINF:4.000**, seg-558-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D **#EXTINF:0.616**, seg-559-f1-v1-a1.ts?validto=1691016383&ip=108.223.180.169&hash=v70AOyHrYt%2FsO7JKFSmRbzI3Zs4%3D #EXT-X-ENDLIST
	3023543 Bandwidth	#EXTM3U #EXT-X-TARGETDURATION:4 #EXT-X-ALLOW-CACHE:YES #EXT-X-PLAYLIST-TYPE:VOD #EXT-X-VERSION:3

U.S. Patent No. 9,407,564 to Brazzers

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HLS "allows a receiver to adapt the bitrate of the media to the current network conditions in order to maintain uninterrupted playback at the best possible quality." RFC 8216 at 4; *see also id.* ("Using this protocol, a client can receive a continuous stream of media from a server for concurrent presentation.").

For the instant test, the Brazzers web player initially requests and receives the **915420 Bandwidth** version of the streamlets. Upon making a determination that the higher bitrate can be supported, the Brazzers web player switches to request and receive the **3023543 Bandwidth** version of the streamlets. Below is an excerpt of the Charles "Sequence" listing showing the same alongside the status of the requests.

<table>
<tr><th>Claim Element</th><th>Example Infringement Evidence</th></tr>
<tr><td></td><td>
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<tr><th>Method</th><th>Host</th><th>Path</th><th>…</th><th>Status</th></tr>
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The Brazzers web players “[p]laylist files contain URIs, which clients will use to make network requests of arbitrary entities.” RFC 8216 at 55. When playback starts on the Brazzers web player, “[t]he client,” which is the Brazzers video player on the Brazzers web player, “SHALL choose which Media Segment to play first from the Media Playlist.” RFC 8216 at 45; *id.* at 47 (“The first segment to load is generally the segment that the client has chosen to play first (see Section 6.3.3).”). Then, “[i]n order to play the presentation normally, the next Media Segment” the Brazzers web player requests and “load[s] the one with the lowest Media Sequence Number that is greater than the Media Sequence Number of the last Media Segment loaded.” RFC 8216 at 47. That is, to playback normally, the Brazzers web player must request a plurality of files with sequential Media Sequence Numbers/timestamps and the requests are made based on the Media Sequence Numbers/timestamps.

As shown above, although the Brazzers web player initially requests the **915420 Bandwidth** version of the program, it quickly switches to requesting the **3023543 Bandwidth** version when bandwidth is adjusted.

On information and belief, playlists for the other resolution variants also include these segments, which correspond to the same portion of the video provided on-demand from the Brazzers web player’s Server(s).
</td></tr>
</table>

<table>
<tr><th>Claim Element</th><th>Example Infringement Evidence</th></tr>
<tr><td>[8.8] the automatically requesting including repeatedly generating a factor indicative of the current ability to sustain the streaming of the video using the files from different ones of the copies, wherein the factor relates to the performance of the network; and</td><td>
The Brazzers web player receives a streamlet request from the end user station and subsequently places a request to the video servers over the one or more network connections for the selected stream.

HLS “allows a receiver to adapt the bitrate of the media to the current network conditions in order to maintain uninterrupted playback at the best possible quality.” RFC 8216 at 4; see also id. (“Using this protocol, a client can receive a continuous stream of media from a server for concurrent presentation.”).

For the instant test, the Brazzers web player initially requests and receives the 915420 Bandwidth version of the streamlets. Upon making a determination that the higher bitrate can be supported, the Brazzers web player switches to request and receive the 3023543 Bandwidth version of the streamlets. Below is an excerpt of the Charles “Sequence” listing showing the same alongside the status of the requests.
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<tr><td></td><td>Segment” the Brazzers web player requests and “load[s] the one with the lowest Media Sequence Number that is greater than the Media Sequence Number of the last Media Segment loaded.” RFC 8216 at 47. That is, to playback normally, the Brazzers web player must request a plurality of files with sequential Media Sequence Numbers/timestamps and the requests are made based on the Media Sequence Numbers/timestamps.

As shown above, although the Brazzers web player initially requests the 915420 Bandwidth version of the program, it quickly switches to requesting the 3023543 Bandwidth version when bandwidth is adjusted.</td></tr>
<tr><td>[8.9] making the successive determinations to shift the playback quality based on the factor to achieve continuous playback of the video using the files of the highest quality one of the copies determined sustainable at that time,</td><td>The Brazzers web player receives the requested streamlets via one or more network connections in accordance with the determinations made based upon available bandwidth.

In response to requesting the first streamlet via an HTTP GET request, as shown above, the Brazzers web player receives the requested streamlet from the server via the one or more network connections. See e.g., RFC 8216 at 4 (“Using this protocol, a client can receive a continuous stream of media from a server for concurrent presentation.”); id. at 5 (“To play this Playlist, the client first downloads it and then downloads and plays each Media Segment declared within it. The client reloads the Playlist as described in this document to discover any added segments.”).

HLS “allows a receiver to adapt the bitrate of the media to the current network conditions in order to maintain uninterrupted playback at the best possible quality.” RFC 8216 at 4; see also id. (“Using this protocol, a client can receive a continuous stream of media from a server for concurrent presentation.”).

For the instant test, the Brazzers web player initially requests and receives the 915420 Bandwidth version of the streamlets. Upon making a determination that the higher bitrate can be supported, the Brazzers web player switches to request and receive the 3023543 Bandwidth version of the streamlets. Below is an excerpt of the Charles “Sequence” listing showing the same alongside the status of the requests.

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</table>
</td></tr>
<tr><td>[8.10] wherein the making the successive determinations to shift comprises upshifting to a higher quality one of the different copies when the at least one factor is greater than a first threshold and downshifting to a lower quality one of the different copies when the at least one factor is less than a second threshold; and</td><td>
As explained above, Brazzers web player receives the requested streamlets via one or more network connections in accordance with the determinations made based upon available bandwidth. This includes upshifting in resolution when the available bandwidth can support a higher resolution of the video and downshifting when the available bandwidth can no longer support the then-displayed resolution of the video.

In response to requesting the first streamlet via an HTTP GET request, as shown above, the Brazzers web player receives the requested streamlet from the server via the one or more network connections. See e.g., RFC 8216 at 4 (“Using this protocol, a client can receive a continuous stream of media from a server for concurrent presentation.”); id. at 5 (“To play this Playlist, the client first downloads it and then downloads and plays each Media Segment declared within it. The client reloads the Playlist as described in this document to discover any added segments.”).

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<tr><td>GET</td><td>stream-private-ht.project1content.com</td><td>…/hls/…/seg-44-f1-v1-a1.ts?...</td><td>…</td><td>Complete</td></tr>
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<tr><td>GET</td><td>stream-private-ht.project1content.com</td><td>…/hls/…/seg-48-f3-v1-a1.ts?...</td><td>…</td><td>Complete</td></tr>
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</table>
</td></tr>
<tr><td>[8.11] presenting the video by playing back the requested media files with the media player on the end user station in order of</td><td>The Brazzers web player provides the streamlets of the video program to the end user device over a network connection in order of ascending playback time.

Brazzers confirms that its web player provides video playback to end user stations over a network connection on the Brazzers support webpage, https://www.support.brazzers.com. There, Brazzers troubleshoots problems end users may have with HLS and instructs users on how to optimize their video playback experience. See https://www.support.brazzers.com/technical.</td></tr>
</table>

U.S. Patent No. 9,407,564 to Brazzers

Claim Element	Example Infringement Evidence
ascending playback time.